What is claimed is:

1.   A resource allocation method for allocating data slots to access devices in a broadband telecommunications system operating under a combined free/demand assignment multiple access protocol, comprising in each frame:

5   (i)   determining a number of reserved data slots for an access device;

           (ii)   receiving a volume-based dynamic capacity request from the access device;

           (iii)   determining a maximum prioritized volume-based dynamic capacity for the access device according to the volume-based dynamic capacity request and an accumulated prioritized volume-based dynamic capacity credit for the access device;

10   (iv)   repeating (i) to (iii) for each of a plurality of access devices;

           (v)   determining a total available capacity for prioritized volume-based dynamic capacity;

           (vi)   allocating, to each of the plurality of access devices in turn up to their respective maximum prioritized volume-based dynamic capacities, prioritized volume-based dynamic

15 capacity data slots until the total available capacity is exhausted; and

           (vii)   updating each of the plurality of access device's accumulated prioritized volume-based dynamic capacity credit.

2.   The method of claim 1, wherein the number of reserved data slots are data slots reserved through constant rate allocation.

20 3.   The method of claim 1, wherein the number of reserved data slots are data slots reserved according to rate-based dynamic capacity.

4.   The method of claim 1, further including determining a maximum total volume-based dynamic capacity for each of the plurality of access devices.

5.   The method of claim 4, further including allocating non-prioritized volume-based

25 dynamic capacity data slots to each of the plurality of access devices if the available total capacity is not exhausted after the allocation of prioritized volume-based dynamic capacity data slots.

6.   The method of claim 5, further including allocating free capacity assignment data slots after the non-prioritized volume-based dynamic capacity data slots have been allocated if free

capacity remains.

7.   The method of claim 5, wherein the allocation of free capacity assignment data slots includes the maintenance of a free capacity assignment credit for each of the plurality of access devices.

8.   A resource allocation system for a broadband telecommunications network operating under a combined free/demand assignment multiple access protocol, comprising:

        a circular-linked list for containing resource requirements for each of a plurality of access devices, the resource requirements including an accumulated volume-based dynamic capacity credit for each of the plurality of access devices;

        a resource allocation server logically connected to the circular-linked list for receiving volume-based dynamic capacity requests from the plurality of access devices, and for scanning the circular-linked list to determine a number of reserved data slots for each of the plurality of access devices, to determine a maximum prioritized volume-based dynamic capacity for each of the plurality of access devices, to allocate, according to their respective volume-based dynamic capacity requests and accumulated prioritized volume-based dynamic capacity credits, prioritized volume-based dynamic capacity data slots until a total available capacity is exhausted, and, to update the accumulated prioritized volume-based dynamic capacity credits for each of the plurality of access devices.

9.   The resource allocation system of claim 8, wherein the resource allocation server resides in a baseband section of a base station.

10.   The resource allocation system of claim 8, wherein the circular-linked list includes a free capacity assignment credit for each of the plurality of access devices.